SUCCESS STORIES

Western Bark Beetle Initiative 2010 **Region 5**

Keeping Bark Beetles under Control

A Partnership between Forest Health Protection and Sierra National Forest

Thinning to improve growth and vigor of residual trees is the most effective long-term strategy to reduce stand susceptibility to bark beetle-caused tree mortality. However, thinning is not without risks when it results in creating suitable host material (cut green trees) for pine engraver beetles, particularly during drought periods. A large increase in pine engraver activity was reported throughout California in 2009. Pine engraver beetle populations can build up rapidly due to a short generation time required from egg to adult and beetles can and will attack both cut material and surrounding residual trees.

Figure 1. *Ponderosa Pine (right), Monterey x Knobcone hybrid (left).*

In 2009 High Sierra Ranger District, Sierra National Forest thinned the Linson plantation – a 14 acre ponderosa pine plantation (80% of stand composition) intermixed with hybrid Monterey-knobcone pine cross (*Pinus radiata x Pinus attenuata*). This plantation was developed to observe performance and phenotypes of this hybrid, as well as resistance against drought and insects. As part of the Sierra National Forest strategic plan to reduce threat of catastrophic wildfire near private residences while improving forest conditions throughout a landscape, treatment in the Linson plantation was considered top priority. A number of private homes are directly adjacent to the plantation (Figure 1).

Planted in 1963, trees are now 47 years old and ranged in size between 10 to 25 in. DBH – growing robustly with minimal inter-tree competition. Trees were initially planted in 8x8 foot spacing, with no previous thinning before 2009. Basal area averaged 220 ft^2/acre; a level considered to be susceptible to bark beetles for this site, in fact western pine beetle was active in 2008 killing 25 trees in the plantation. To reduce susceptibility to wildfire through fuels reduction, and further bark beetle-caused tree mortality, the district initiated a thinning treatment in May 2009. Post-treatment residual basal area is 140 ft^2/acre; average tree diameter is 18 inches.

Trees were felled for use as commercial firewood by a local contract forester. A mechanical feller-buncher and skidder were used to bring whole logs to the landing deck to buck into firewood. Pine engraver beetles were attracted to the suitable host material and successfully infested both ponderosa and hybrid logs, and also attacked live trees around the landing deck. Unfortunately geography of the plantation in relation to the road resulted in the deck being located behind a private residence which put their trees at risk to attack as well. As lone operator, the contractor could not process the material quickly enough prior to the next generation of beetles emerging.

Figure 2. *Landing deck cleared of infested logs and debris. Note residence on far left.*

Forest health protection funding allowed the district to act quickly and provide a force account crew to assist in prompt removal of infested material before beetle emergence, which reduced the possibility of even more trees being attacked on National Forest and private lands. Land managers should be cognizant of the ability of pine engraver beetles to attack slash, and cut and standing trees, and should consider appropriate C clauses in contracts that require treatment of material within certain time frames to prevent situations such as these.

For more information, contact Beverly Bulaon (209) 532-3671